the fire flared up and required determined and sustained effort to keep it under control. Light rainfall did not make the fire safe. A half inch of rain or more seems to be necessary to put a fire in a condition where it is no longer a menace.—*Forestry section, 1927–28, Annual Report of the Director, agricultural experiment station, University of Wisconsin.*

Count Rumford in meteorology.—In the course of a most interesting biography of Count Rumford by Lyman C. Newell, published in Science, July 27, 1928, pages 67–73, the following (pp. 69–70) is of historical interest in American meteorology:

One of his investigations was an elaborate series of unique experiments on the heat-conducting power of fluids. He showed among many other things that convection currents are the principal means by which heat is transferred through fluids, and described how, when a vessel of water is heated, there is generally an ascending current in the center and a descending current all around the periphery. Hence he concluded it is only when a liquid expands by increase of temperature that a large mass can be readily heated from below. He also pointed out the exceptional behavior of water below 39° F., viz, it contracts when heated and expands when cooled. Then he proceeded to explain how large bodies of water are prevented from freezing at great depths on account of the expansion which takes place on cooling below 39° F., and he mentions as an example that in the Lake of Geneva, at a depth of a thousand feet, the temperature was found to be 40° F. He emphasized the fundamental bearing of this unusual behavior of water on climate everywhere, and on the preservation of trees, fruits, and vegetables during the winter in cold countries.

In his experiments on the heat-conducting power of liquids, Count Rumford * * * turned his conclusions to practical account in making warm clothing, not only of woven fabrics but also of feathers and fur. * * *

In another series of experiments devoted to the radiating power of different surfaces he showed how the power varied with the nature of the surface and illustrated the results by demonstrating the effect of a coating of lampblack in increasing the radiating power of a body.

He also investigated the absorption of heat by different surfaces. His results led to the law that good radiators are good absorbers and the recommendation that vessels in which water is to be heated should be blackened on the outside. In speculating on the function of the coloring matter in the skin of the negro, he said:

"Were I called to inhabit a very hot country, nothing should prevent me from making the experiment of blackening my skin, or, at least, of wearing a black shirt, in the shade and especially at night, in order to find out if by those means I could contrive to make myself more comfortable."

—*C. F. B.*

New rainfall record for Canal Zone.—Rainfall in this consular district during the months of July, August, and September was considerably greater than during the corresponding months of the year 1928. A notable feature was a precipitation in the space of one hour of 5.16 inches. The total rainfall in the Colon consular district during the month of August was 23.78 inches.

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C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

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Flood control with special reference to the Mississippi river. A symposium . . . p. 657–969. illus. 23 cm. (Repr.: Trans. v. 93. 1929. Paper no. 1709.)

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Formation of hail. p. 305–308. illus. 28 cm. (Discovery. London. v. 10, Sept., 1929.)

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